

**Space Medicine**  
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The National Academy of Sciences Committee on Space Biology and Medicine points out that space medicine is unique among space sciences, because in addition to addressing questions of fundamental scientific interest, it must address clinical or human health and safety issues as well.

Efforts to identify how microgravity affects human physiology began in earnest by the United States in 1960 with the establishment of the National Aeronautics and Space Administration (NASA's) Life Sciences program. Before the first human space missions, prediction about the physiological effects of microgravity in space ranged from extremely severe to none at all.

The understanding that has developed from our experiences in space to date allows us to be guardedly optimistic about the ultimate accommodations of humans to space flight.

Only by our travels into the microgravity environment of space have we begun to unravel the mysteries associated with gravity's role in shaping human physiology. Space medicine is still at its very earliest stages. Development of this field has been slow for several reasons, including the limited number of space flights, the small number of research subjects, and the competition within the life sciences community and other disciplines for flight opportunities.

The physiological changes incurred during space flight may have a dramatic effect on the course of an injury or illness. These physiological changes present an exciting challenge for the field of space medicine: how to best preserve human health and safety while simultaneously deciphering the effects of microgravity on human performance. As the United States considers the future of humans in long-term space travel, it is essential that the many mysteries as to how microgravity affects human systems be addressed with vigor. Based on the current state of our knowledge, the justification is excellent – indeed compelling – for NASA to develop a sophisticated capability in space medicine. Teams of physicians and scientists should be actively engaged in fundamental and applied research designed to ensure that it is safe for humans to routinely and repeatedly stay and work in the microgravity environment of space.